



Mr. Chairman and Members of the Committee:

My name is Joelle Selk. I represent the Traditional Bowhunters of Montana. We oppose HB 173 for a number of reasons. I want to focus on just one of the most salient technological reasons for opposing lighted nocks.

Most archers understand the beneficial effects which "weight front of center" has on arrow flight. When properly constructed with front of center aspects in mind, an arrow travels with less drag and flex, thus producing greater accuracy and increased penetration. This effect has been thoroughly researched and confirmed by Dr. Ed Ashby in multiple studies since the late 1980's.

I give you this background information because we have concerns about the weight distribution changes which electronic nocks will have on an arrow. Arrows continue to be made with lighter materials and less flex, characteristics which should increase an archer's ability to shoot farther and more accurately. However, by adding weight to the ends of these arrows, you change the weight distribution of the arrow. In other words, you can end up with nearly no front of center and an arrow that will not fly well. There are accounts on the internet of archers having to shim the nocks into a shaft to make them fit properly. There are also posts of how to make your own lighted nocks. Our concern is that you could actually end up with less reliable and accurate equipment by installing electronic nocks, and perhaps an increased wounding rate.

Based on this research and the well-grounded reasons of other bowhunters in opposition to this bill, I urge you to vote "do not pass" to this legislation.

Thank you.

Sincerely,

Joelle Selk
TBM Legislative representative

Source material:

<http://www.alaskabowhunting.com/Dr.-Ed-Ashby-W26.aspx>

http://www.alaskabowhunting.com/PR/Ashby_EFOC.pdf

Understanding and Applying FOC

Dr. Ed Ashby

The 2005 Study update, Part 2, related the status of Extreme FOC testing, and set study FOC definitions. In its aftermath many questions have been received. There is significant interest in FOC; and much confusion. What is FOC; what does it do; how much FOC is needed; how and why does it affect tissue penetration; and what measuring method is "most correct"? Questions received are too numerous to answer individually. The following is presented in hopes it answers most.

What Does FOC stand for? It is an abbreviation for "Forward of Center"; but is commonly use as total replacement for the phrase "weight forward of center".

What does weight forward of center mean? The common answer is: FOC represents how far forward the arrow's balance point is from the shaft's midpoint ... or the mid-point of the arrow's total length; and we will discuss that "definition difference" later. FOC is specified as a ratio of balance point to shaft's (or arrow's) mid-point; in percentage.

Why do we need a FOC reference point? What does it do for arrow flight? Think of FOC as indicating the arrow's fulcrum point. The further forward it is, the longer the "fulcrum arm", or "lever", of the fletching. [Note that this represents the "rearward lever".] The longer this lever, the more pressure a given amount of fletching can exert upon the arrow, increasing its control (degree of stabilizing effect). Having higher FOC makes the fletching's job easier. If wishing to alter FOC, having a reference point tells us "where we are"; "which direction we are going"; and "how much change" we've made.

How much FOC does one need? The range of FOC recommended for different forms of archery varies. In their charts, Easton shows the following recommended FOC ranges, with calculations based on the AMO Standard formula:

- FITA (Olympic Style) 11% to 16%
- 3-D Archery 6% to 12%
- Field Archery 10% to 15%
- Hunting 10% to 15%

Hunters need fairly high FOC. Broadheads exert a steering effect upon the arrow, due to wind-shear. Fletching must overcome these "wind-plane" forces. High FOC means fletching has a longer "lever", and more steering control. The shorter the arrow one shoots, the higher the FOC should be. Shorter arrows are inherently less stable in flight. The longer rear lever helps fletching overcome this. A finger release also adds to arrow instability, especially in initial flight. Here to, high FOC is beneficial.

Why does Extreme FOC give more tissue penetration? They encounter lower resistance. The reduced resistance results from less shaft-flex on impact. Prior testing has shown shaft flex increases shaft-drag, and shaft-drag is a major influencing factor on penetration.

BIOGRAPHY

Dr. Ed Ashby is an avid hunter with both gun and bow. He began bowhunting big game in 1958 and has had the opportunity to meet and hunt with many of the great bowhunters of the past decades - Howard Hill, Ben Pearson, and Fred Bear. He has hunted extensively in North America and Africa and has shot several hundreds of animals with bow and arrow, from small game to white rhinos. His favorite longbow, a 94# bamboo bow he built in 1980, alone has accounted for over 300 big-game animals.

With personal bowhunting experiences which spans from instinctive shooting with self-wood longbows and cedar arrows through high energy cam bows and over-draw compounds with carbon arrows, sights and releases (and back again, to his favored longbows with compressed wood arrows), Dr. Ashby has a wealth of bowhunting experiences to draw from. This is supplemented by an enormous data base, which he has carefully collected over the years, on the effectiveness of various bowhunting equipment "in the game field".

In 1985, Dr. Ashby conducted, in Natal Provence, South Africa, what is still the most extensive formal evaluation of broadhead performance on game animals. His research data is used by several of the U.S. States and foreign countries in hunter education programs. He is the author of numerous technical hunting-related articles that have been published in the U.S. and internationally.

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